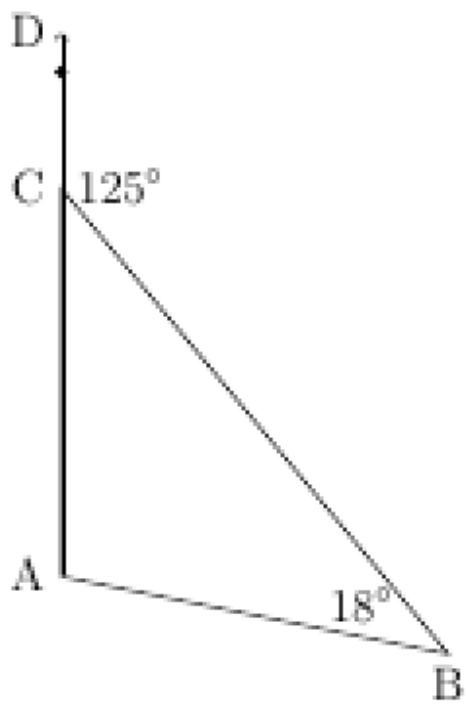
Topic: Interior angles of triangles

Question: Find the sum of the angles.

What is $m\angle A + m\angle B$?



Answer choices:

A $55°$

B $73°$

C $107°$

D $125°$

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Solution: D

$\angle ACB$ and $\angle DCB$ form a straight line, so

$$\angle ACB + 125^\circ = 180^\circ$$

$$\angle ACB = 55^\circ$$

The three angles of a triangle add up to 180°, so

$$55^\circ + m\angle A + 18^\circ = 180^\circ$$

$$m\angle A = 107^\circ$$

Then we can say that

$$m\angle A + m\angle B = 107^\circ + 18^\circ = 125^\circ$$

If you know the theorem that states that an exterior angle of a triangle is equal in measure to the sum of the two remote interior angles, then you could have used that to easily solve this problem.

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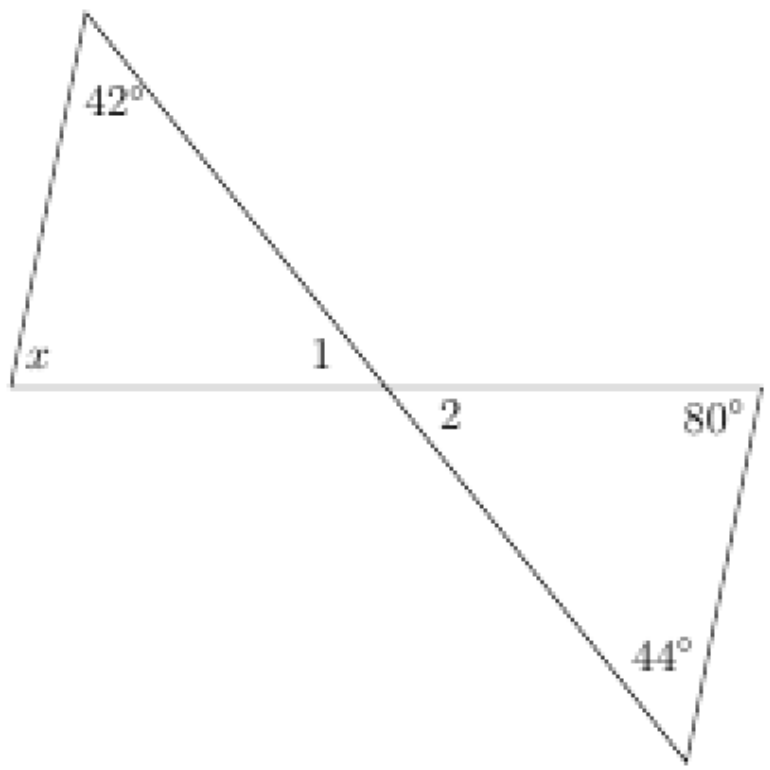
Question: What is the value of x?



Answer choices:

A 56°

B 82°

C 88°

D 92°

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Solution: B

The three interior angles of a triangle add up to $180°$, so

$$m\angle 2 + 80° + 44° = 180°$$

$$m\angle 2 = 56°$$

And vertical angles are congruent, so

$$m\angle 1 = m\angle 2 = 56°$$

Again, the three angles of a triangle add up to $180°$, so we can say

$$m\angle 1 + 42° + x = 180°$$

$$56° + 42° + x = 180°$$

$$x = 82°$$

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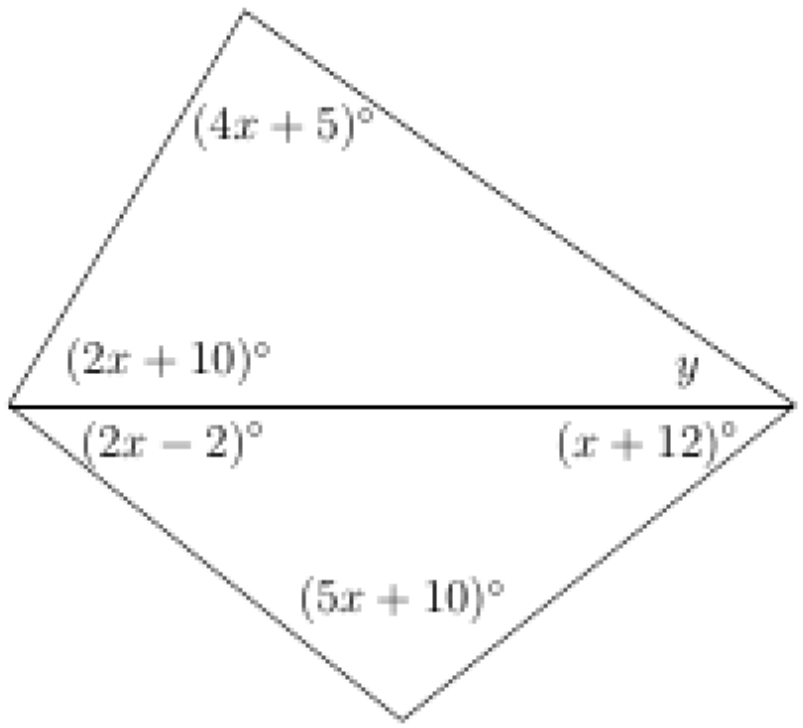
Topic: Interior angles of triangles

Question: Solve for the variable.

Find the value of y.



Answer choices:

A 35°

B 42°

C 45°

D 51°

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Solution: C

The three angles of a triangle add up to $180°$, so in the bottom triangle, we have

$$2x - 2° + x + 12° + 5x + 10° = 180°$$

$$8x + 20° = 180°$$

$$8x = 160°$$

$$x = 20°$$

Applying this value of x to the top triangle, and using the fact that the sum of the interior angle is $180°$, we get

$$2x + 10° + 4x + 5° + y = 180°$$

$$2(20°) + 10° + 4(20°) + 5° + y = 180°$$

$$135° + y = 180°$$

$$y = 45°$$

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